

WHAT IS CLAIMED IS:

1. A method for enhancing pixel color having three components (R, G, B) respectively corresponding to the primary colors of Red, Green and Blue, comprising the steps of:
  - (a) determining a reference value X;
  - (b) subtracting X from said three components (R, G, B) to obtain values of (R-X), (G-X) and (B-X);
  - (c) respectively obtaining three scaled components (Rs, Gs, Bs) by scaling (R-X), (G-X) and (B-X) using scale factor S; and
  - (d) respectively adding three scaled components (Rs, Gs, Bs) to said three components (R, G, B) to generate three enhanced components.
2. The method of claim 1, wherein X is a minimum value of R, G, and B of said pixel.
3. The method of claim 1, wherein X is a middle value of R, G, and B of said pixel.
4. The method of claim 1, wherein X is a maximum value of R, G, and B of said pixel.
5. The method of claim 1, wherein X is a mean of R, G, and B of said pixel.
6. The method of claim 1, wherein said scaling step is performed by operations of  $S*(R-X)$ ,  $S*(G-X)$  and  $S*(B-X)$ .
7. The method of claim 1, further comprising a clamping operation, after the step (d), over said three enhanced components.
8. An apparatus for enhancing pixel color having three components (R, G, B)

respectively corresponding to the primary colors of Red, Green and Blue, comprising:

a first circuitry for determining and outputting a reference value  $X$ ;  
a second circuitry for subtracting  $X$  from three components (R, G, B) respectively to obtain values of  $(R-X)$ ,  $(G-X)$  and  $(B-X)$ ;  
a third circuitry for scaling said values of  $(R-X)$ ,  $(G-X)$  and  $(B-X)$  by a factor  $S$  to generate values of  $S*(R-X)$ ,  $S*(G-X)$  and  $S*(B-X)$ ; and  
a fourth circuitry for respectively adding said values of  $S*(R-X)$ ,  $S*(G-X)$  and  $S*(B-X)$  to said three components (R, G, B) to generate three enhanced components.

9. The apparatus of claim 8, wherein  $X$  is a minimum value of R, G, and B of said pixel.
10. The apparatus of claim 8, wherein  $X$  is a middle value of R, G, and B of said pixel.
11. The apparatus of claim 8, wherein  $X$  is a maximum value of R, G, and B of said pixel.
12. The apparatus of claim 8, wherein  $X$  is a mean of R, G, and B of said pixel.
13. The apparatus of claim 8, further comprising a fifth circuitry for clamping the three enhanced components to three limitations respectively.
14. An apparatus for enhancing pixel color having three components (R, G, B) respectively corresponding to the primary colors of Red, Green and Blue, comprising:
  - a first circuitry for respectively calculating and outputting values of  $(R-G)$ ,  $(G-B)$  and  $(B-R)$ ;
  - a first multiplexer circuitry, coupled to the first circuitry and responsive to

a first selection signal, for selectively outputting two values of (R-G), (G-B) and (B-R) according to a first predetermined manner;

a multiplier circuitry, coupled to the first multiplexer circuitry, for selectively generating two scaled values of  $S^*(R-G)$ ,  $S^*(G-B)$  and  $S^*(B-R)$ , wherein S is a predetermined scale factor;

a second multiplexer circuitry, coupled to the multiplier circuitry and responsive to a second selection signal, for selectively outputting the  $S^*(R-G)$ ,  $S^*(G-B)$  and  $S^*(B-R)$ ;

an AND logic circuitry, coupled to the second multiplexer circuitry and responsive to a first control signal, for selectively outputting a set signal of ( $S^*(B-R)$ ,  $S^*(G-B)$ , 0), ( $S^*(R-G)$ , 0,  $S^*(G-B)$ ) and (0,  $S^*(R-G)$ ,  $S^*(B-R)$ ); and

an arithmetic circuitry, coupled to the AND logic circuitry and inputting the three components (R, G, B), for selectively outputting an enhanced color components of ( $R+S^*(R-B)$ ,  $G+S^*(G-B)$ , B), ( $R+S^*(R-G)$ , G,  $B+S^*(B-G)$ ) and ( $R$ ,  $G+S^*(G-R)$ ,  $B+S^*(B-R)$ ), responsive to a second control signal.